NOVEMBER/DECEMBER 2023

GECA14A/DECA14A — DIGITAL LOGIC FUNDAMENTALS

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Mention the base of Octal and Hexadecimal number systems.

2. Simplify the Boolean function $(x + x'y)$ to a minimum number of literals.

3. Define the term – Universal Gate.

4. What is Multiplexer?

5. Define the term – Registers.

6. What are Counters?

7. What is Shifter?

8. Define the term – Microprogramming.

9. Define the term – Accumulator.

10. What is meant by Instruction format?

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SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Convert the following:

    (i) Octal number (26153.7460) to Binary number.

    (ii) Hexadecimal number (2C6B.F2) to Binary number.

Or

(b) Express the Boolean function $F = xy + x'z$ in a Product of Maxterm form.

12. (a) Implement the NOT, OR and AND Gates by using NOR Gates.

Or

(b) Discuss on the functioning of Decimal Adder.

13. (a) Explain the working of Ripple Counters.

Or

(b) Describe the functions of Shift registers.

14. (a) Discuss on the Bus organization and Scratch pad memory.

Or

(b) Explain the functions of Status Registers.

15. (a) Describe about Microprogram control.

Or

(b) Discuss on PLA control.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the functioning of different types of Digital Logic gates.

17. Describe the functioning of Half-adder and Full-adder.

18. Discuss on different types of Flip-flops.

19. Explain the functioning of Processor Unit.

20. Describe about Hard-wired Control in detail.

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